May 29, 1955

Dear Miss Husted:

Thank you for your letter and for the 22d ed. of your dictionary. The "Stedman" I had purchased as a medical student needed some freshening.

As I would consider the maintenance of an accurate and up-to-date technical dictionary in the life sciences one of the most urgent and necessary tasks to help rapidly diverging specialties communicate with one another, I have gone to some effort to look over the terms you referred back to me, as well as some others. I am sending you my accumulated notes.

But I fear I could only scratch the surface in the time I could spend at moment. I hope my remarks are not gratuitous, but I am truly sorry to have to say that a great deal of work would be needed to revise the dictionary to make it truly useful and reliable at least in the fields of my own interest, genetics and bacteriology. A good deal of space is devoted to terms that have died since about 1910; for others meanings have changed slightly, or the original definitions were not expertly framed. The comments are only an initial sample.

My criticism, which as I am sure you realize is offered in a friendly and constructive vein, need evoke no apologies. Your competitors have done no better; the task is simply too large to be handled except by a rather large group of copperating experts, the cost of whose consultative services may be prohibitive. On the whole, the unabridged dictionaries have done a more accurate job, but even with their large staffs, they could not go into the technical detail that would be expected in an enterprise like yours.

The objective is too important to be left undone in frustration. I would suggest that either your company considers enlarging its technical staff (with the inevitable undesirable result of cost increases) or approaching the American Institute of Biological Sciences and the American Medical Association for help in trying to organize an adequate consultative base. The AIBS has been executing a job in copperation with the National Research Council, and with federal support, namely the Handbook of Biological Data, which I would consider rather less important than the job of setting up a really complete and reliable technical dictionary. I do not think mere bulk would be a limiting factor— the work I have in mind could be encompassed within the present size volume, particularly if derivatives bearing an obvious relationship to the root word were omitted, and the deadwood relegated to a dictionary of antiquities.

To change the subject, may I comment on derivations? It often happens that new words are modelled after existing English terms, rather than the ultimate classical roots. Then, to quote Gk. gen- rather than English gene as the source word of compounds may be misleading (as it would be in heterogenote). Perhaps a better example is the words in some, which are really modelled after chromosome, and not the ultimate soma; or better still, the compounds of -ploidy which are modelled after the word ploidy itself, which is in turn an empirical abstraction from haploid, diploid, etc., rather than a derivative af any (which?) Greek root. I have tried to indicate this process in my own comments. I believe that to present to factual English model word, where it exists, is more realistic than to go back to the classical origins, which can always be deduced from the prototype in any case. One more instance: pseudoallele is just Eng. pseudo- and allele; it could never have been independently derived from "false" and "different", the allele having come by contraction from allelomorph, which was of classical construction. I realize there is some variance in practice along these lines, and I notice that the 22d Ed. often accepts prefixes, but usually not suffixes, on the terms I presented. E.G. why not, glycorrhea as just glyco- and -rrhea, both of which are listed as combining forms, or, even better glycosometer, etc. These examples are not so telling, since the combining forms are so close to the classical that the compounds might have been derived equally well from either, which is less often true in genetic neology, (since there was no classical genetics).

Yours sincerely,

Joshua Lederberg
Professor of Genetics

TERMS ESTABLISHED IN GENETIC LITERATURE, SUGGESTED FOR INCLUSION

holandric — inherited exclusively through the male descent; signifies genes located on the Y chromosome.

chromogene (chromosome - and -gene) a chromosomal gene, as distinguished from extrachromosomal

chromogenic	2. pertaining to chromogene
biopoiesis	origin of life from inorganic matter
not gen. aeropause	region of and beypnd the earth's atmosphere tantamount to free space
axenic (a' zen ic) (a- xenos)	in pure culture; free from foreign organisms.
serotype	taxonomic subdivision based on antigenic analysis; a formula describing such a subdvision.
lysotype	taxonomic subdivision of bacteria based on reactions to specific phages; a formula describing such a subdivision.
immunogenetics	branch of genetics concerned with the inheritance of antigenic and other characters related to the immune response.
histocompatibility	1. the ability of a graft to survive homo- or hetero-transplantation. 2. the relation of transplant to host and its genetic basis.
lysogeny, lysogenicity	lysogenesis; the symbiosis of bacterium with phage; the potentiality of a bacterium to produce a phage.
mutagen	a chemical or physical agent that induced mutations.
mutagenic; mutafacient	the proport or act of inducing mutations.
karyotype	the chromosomal constitution of a cell, individual or species.
allopolyploid	an organism having a polyploid chromosome set derived from two or more parental species/
autopolyploid	an organism having a polyploid chromosome set derived from the reloubling of chromosomes of a single species.

SUGGESTED TERMS

COMMENTS ON DEFINITIONS IN 2nd EDITION

polysomy (poly- and chromosome) an excess of a particular chromosome.

polysomaty (deriv? prob same) reduplication of the total chromatin in the nucleus, with or without obvious polyploidy. Often used as synonym for endopolyploidy.

endopolyploidy reduplication of total chromatin as a result of endomitosis without visible increase in chromosome number.

comments on some definitions

genome The definition given is not correct. (It was doubtless furnished by Dr, Davis by analogy with phenome, but this usage of genome has not been introduced into the literature, and I hope will not be. The usefulness of the definition below, contra genotype, has been that a hybrid may contain two or more genomes. Genomic analysis thus means explicitly the investigation of a presumed allopolyploid to determine the ultimate parentage). Def: a single basic set of genes, usually a haploid complement as carried by a gamete. In allopolyploids, each haploid set constitutes one genome.

heterotrophic The interpolation of growth factors is confusing. The term is usually applied to organisms which require a reduced form of carbon for energy and synthesis. (glucose is not usually considered a growth factor)/

autotrophic v.s. the emphasis on vitamins is misplaced. E.g. some green plants (Euglena) require growth factors in small amounts, but, by extension, or rather restriction to the C-source, are still classed as autotrophic.

biose 1. a sugar containing 2 C atoms (= only glycolaldehyde), by analogy with triose, hexose..., but hardly ever used in this sense. 2/ a disaccharide.

bioside then becomes a glycoside containing a biose + aglycone.

biotaxis, biotropism no meanings analogous to chemotaxis, chemotropism?

biparasite ?c = hyperparasite.

COMMENTS ON DEFINITIONS IN 22d Edition

?c = obsol. if ever current; have you a citation

micromucleus - all wrong. 1. In ciliate protozoa, the smaller of two types of nucleus in each cell, required for sexual but not for vegetative reproduction. Cf. macromucleus. 2. karyomere q.v.

karyomere (I am not acquainted with these usages, for 1 certainly ?c) a vesicle containing only a small portion of the total mass of the typical nucleus, usually following mitotic abnormality.

translocation add: in genetics (usually reciprocal t.), the reunion of one part of a broken chromosome with part of another.

inversion add: in genetics, the inverted reunion of the interstitial segment after breakage of one chromosome at two points.

biomone, biomere, biomutation, biomonad, biochemy (German ?), bioplasmin, biorgan ?c

genesistasis ?c I would have reasoned this to mean interruption of development.

xenia include ...from the male (pollen) parent....

gen (for gene) ?c German!

heteroplasty in transplantation genetics and probably generally is dist. from homoplasty. The former implies a different species, the latter a different individual of same spp.

mutagenic 2. inducing genetic mutations.

X- chromosome (under X?) The differential sex chromosome carried by ½ the male and all female gametes in man and other male-heterogametic species.

Y-chromosome (under Y?) The differential sex chromosome carried by ½ male gametes in man and some other male-heterogametic species where the homologue of the X-chromosome has been retained.

biotin correct structural formula— the thiophene ring is omitted!

bisamylose ?c theory?cc

Bouin still contemp? (fl. c 1900)

genetotrophic ?c meaning? (I recall possibly having seen this in the sense of pathology of genetic etiology)

inheritance define! Most of the categories are obsolete or ?c. You might retain criss-cross, with note to sexlinked; extrachromosomal (= cytoplasmic); and mendelian. Holandric and hologynic (spell!) might be defined under their own headings and the others deled. here.

inhibin 1. what does this mean?

antibiotin any antagonist of biotin, not just avidin

colibacillary-antic. compare E. coli/Bacillus coli

azoxybenzene formula as given is misleading. C6H5.N.(.O.)N.C6H5; no N:N bonds.